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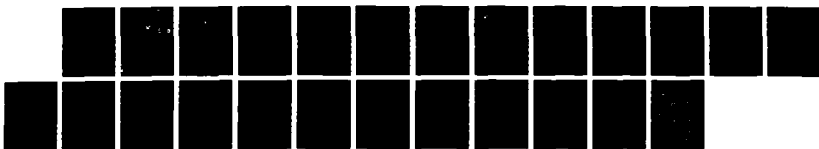
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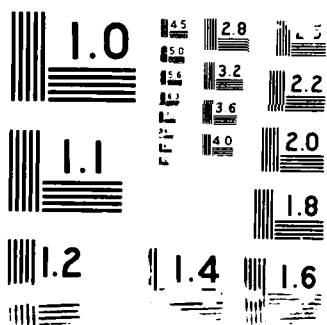
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STUDENT REPORT

COMBAT SEARCH AND RESCUE POLICY FOR THE

UNITED STATES NAVY

LCDR BRYAN P. MURPHY, USN 88-1935

"insights into tomorrow"

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TITLE COMBAT SEARCH AND RESCUE POLICY FOR THE UNITED STATES NAVY

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WASHINGTON, DC 20350-2000

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requirements for graduation.

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<p>The US Navy does not possess dedicated active duty combat search and rescue (CSAR) capability. Currently, the Navy draws CSAR support for planned peacetime contingencies from various sources, but during a crisis or in the early stages of a war, it may have no alternative but Navy helicopters organic to the carrier battle group (CVBG). These airframes and their pilots are ill-equipped to fly the overland CSAR mission. The Navy hopes to correct this situation by improving training and developing CSAR kits with which to retrofit carrier helicopters if necessary. However, history has shown that the Navy's reliance on the CVBG's helicopters to fly CSAR has not worked. The author recommends that the Navy develop an active duty CSAR capability by either (1) making HCS-4 and HCS-5 dual active duty / reserve squadrons (2) assign responsibility to HC-15 (3) attach an active component to the Naval reserve CSAR squadron who will deploy with the CVBG.</p>				
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PREFACE

Since disbanding HC-7 in 1975, the Navy tucked combat search and rescue (CSAR) away in the reserves and thought no more about it. CSAR's recent resurrection as a topic for discussion prompted me to write this paper from the point of view of someone who someday may have to put the resulting policy into practice.

I wish to acknowledge the following people for their help in passing information about how it was, how it is, and how it might be: MAJ PJ Blemberg, USMC, and LT Dave Popowich, USN, from MAWTS-1; LCDR George Kovach, USN, HS Readiness Officer at HELWINGSLANT; LTCOL Joe Ryan, USAF, Air War College; CDR Bauer, USN, CINCLANTFLT; CDR Stu Fisher, USNR, HELWINGSRES; LCDR Rick Southworth, USNR, HC-9; LT Ted Buckett, RN, HS-1; LT Rob Deluca, USN, HSL-30; and LT Alex Miskiewicz, USN, HSL-31. I give special thanks to my sponsor, CAPT David L. O'Niell, USN, OP506E3, Office of CNO for Air Warfare; to my adviser, LTCOL Bill Hammerle, USMC, Air Command and Staff College; and to two former Navy SAR Model Managers who extolled the virtues of CSAR before it became fashionable: LCDR Kerry Sullivan, HC-16, and CDR Chip Mills, Air War College.

I need to reiterate that the views expressed are my own and quite often represent a position contrary to ones expressed by the gentlemen listed above.

Subject to clearance, this manuscript will be submitted to US Naval Institute Proceedings for consideration.



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—ABOUT THE AUTHOR—

LCDR Bryan P. Murphy, USN, is a Navy helicopter pilot with over 2400 flight hours. He flew the H-46 his first two tours after flight school: first as a search and rescue pilot at HC-16, NAS Pensacola, FL, and next as a vertical replenishment pilot at HC-11, NAS North Island, CA. He attended the US Naval Test Pilot School at NAS Patuxent River, MD, and worked as Safety Officer and UH-1N pilot on USS NASSAU (LHA4). LCDR Murphy earned a BS in Chemical Engineering from the University of Notre Dame in 1977, and an MBA from the University of West Florida in 1981. He is currently enrolled in the Air Command and Staff College at Maxwell AFB, AL. FATHOM Magazine, the US Navy's Surface Ship and Submarine Safety Review, named him their Writer of the Year in 1985 for his article "Boating Fun?"

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EXECUTIVE SUMMARY

Part of our College mission is distribution of the students' problem solving products to DoD sponsors and other interested agencies to enhance insight into contemporary, defense related issues. While the College has accepted this product as meeting academic requirements for graduation, the views and opinions expressed or implied are solely those of the author and should not be construed as carrying official sanction.

—“insights into tomorrow”

REPORT NUMBER 88-1935

AUTHOR(S) LIEUTENANT COMMANDER BRYAN P. MURPHY, USN

TITLE COMPAT SEARCH AND RESCUE POLICY FOR THE UNITED STATES NAVY

I. Problem: The Navy does not now possess nor plan to develop in the near future a dedicated active duty combat search and rescue (CSAR) capability.

II. Objectives: This paper will show that the Navy's policy of using the carrier battle group's (CVBG) organic helicopters to fly CSAR has not worked in the past and will probably not work well in the future, despite proposed improvements. The author will recommend how the Navy can develop an active duty CSAR capability within existing institutions.

III. Discussion of Analysis: The Navy needs a CSAR capability for several reasons: traditional Western respect for human life, aircrew preservation and morale, improved special operations and rescue at sea capabilities, and denial to the enemy of an intelligence and political asset. Regarding the last point, Americans have proved very vulnerable to political manipulation by unfriendly governments who hold Americans as prisoners of war or hostages.

CONTINUED

Currently the Navy can draw CSAR support from several sources: HC-9, the Naval Reserve CSAR squadron; Army, Air Force, and Marine aviation; special operations forces; surface and subsurface naval units; and the CVBG's organic helicopters. During a peacetime crisis or in the early stages of a war, the Navy may have no alternative but its own helicopters. Navy helicopter pilots do not receive adequate training in battlefield tactics or CSAR mission planning to operate effectively in an opposed environment. The Navy hopes to correct this situation by developing and implementing CSAR training for all fleet helicopter pilots.

Examining CSAR's evolution leads to the conclusion that a fleet helicopter manned by pilots with little CSAR proficiency can no longer effectively fly opposed overland rescue missions. In the Korean War, the carrier would at times launch its helicopter directly from the plane guard pattern into North Korea to rescue a downed airman. The Navy initially tried to repeat this tactic in Vietnam with dismal results. Not until it formed HC-7, devoted exclusively to CSAR, did the Navy enjoy any notable success in rescuing its fliers downed over North Vietnam. Abolishing HC-7 after the war has forced the Navy to provide CSAR support for the numerous contingency operations since Vietnam on an ad hoc basis.

While the Navy's CSAR capability has not improved much in the last 15 years, the threat faced by helicopters flying overland CSAR has. Surface-to-air missiles, antiaircraft artillery, and attack helicopters have increased dramatically in numbers, mobility, and lethality around the world. Even after incorporating the new CSAR kits, Navy helicopters will not possess the equipment available to counter these threats.

IV. Conclusion: Even with improved training and equipment, the Navy cannot effectively provide CSAR support with the CVBG's organic helicopters and pilots. It must develop a dedicated active duty CSAR capability which will deploy with the CVBG.

V. Recommendations: The Navy has several options to develop an active duty CSAR capability by building on existing institutions.

-- Make HCS-4 and HCS-5 dual active/reserve squadrons. The active duty component will provide each carrier air wing with a two plane detachment. This option will require that the Navy augment both squadrons with additional airframes and active duty pilots, crewmen, and maintenance personnel.

-- Assign CSAR responsibility to HC-16, the Navy's SAR Model Manager. This has the same advantages and requirements listed above.

-- If the Navy cannot afford additional airframes, it can attach an active duty component to the Navy's reserve CSAR squadron. The active component will provide deploying carrier air wings with several pilots and crewmen. While this option does not address the problem of airframes ill-equipped for CSAR, at least the CVBG will deploy with indigenous CSAR expertise.

COMBAT SEARCH AND RESCUE POLICY FOR THE UNITED STATES NAVY

During a short-fused contingency operation, an A-6 loses its tail to an SA-7 surface-to-air missile (SAM) while on a night bombing mission. With their aircraft out of control, the pilot and bombardier safely eject over land near the target. Minutes after the survivors establish communication with their wingman, a Navy tilt rotor HV-22 Osprey appears out of the darkness. The highly trained combat search and rescue (CSAR) aircrewmembers retrieve the survivors and spirit them back to the carrier battle group (CVBG).

Unfortunately, the Navy is not scheduled to receive its first Ospreys for nearly a decade. What if this scenario happens tomorrow? Unless the Navy has time to preposition CSAR assets, the survivors would have to rely on a helicopter from the CVBG's current stable: antisubmarine warfare helicopters such as the carrier based SH-3 Sea King, or the SH-2 Sea Sprite and the SH-60 Seahawk from escort ships, or the logistics CH-46 Sea Knight from an auxiliary. These aircraft normally carry no self-defense capability and become unflyable after limited battle damage. The pilots receive little CSAR or hostile environment training and have no experience with night vision goggles (NVG) or terrain flight (TERF). Faced with these liabilities, overland combat rescues at night or against a more sophisticated threat than small arms fire stand little chance of success. Will the CVBG commander risk any of his scarce helicopters under these conditions? Are Navy Tacair pilots willing to gamble their lives, or possibly several long years in captivity, on such long odds?

As a long term fix to this problem, the Navy plans to buy up to 53 HV-22's (3:49) and establish a dedicated active duty CSAR squadron. Assuming production dates and budgetary priorities do not slip, the Navy projects the HV-22 fleet introduction for the mid-1990's. In the meantime, the Navy will continue to rely on the CVBG's organic helicopters to perform the CSAR mission, supplementing with CSAR talent from other sources on an ad hoc basis.

The Navy needs to develop a dedicated active duty CSAR capability now. This article will outline the Navy's current CSAR policy, highlight problems encountered while employing this policy in the past, and examine current technological advances which will make the policy problematic in the future. The author will then suggest several options to improve this

interim policy by better exploiting existing institutions to inject CSAR expertise into the CVBG.

The objective of CSAR, or strike rescue as some prefer, "is to effectively employ all available resources to recover distressed personnel in [a] wartime or contingency environment" (19:1). During war, rescue operations consume a seemingly disproportionate amount of attention from all US military services for several reasons:

- Our Western tradition values the sanctity of human life, particularly a fellow American. CSAR turns into an emotional issue when the enemy starts closing in on one of ours. Even though unprepared to perform overland CSAR in Korea and Vietnam, the carriers launched their ill-equipped organic helicopters after downed airmen. As discussed later, this policy cost the Navy dearly.
- A rescued aircrewman returns a valuable asset to the fleet. Air Force Undersecretary James F. McGovern estimates that the USAF has invested \$6 million in an attack pilot by the time he has earned his wings and flown operationally for the three years generally required to become a flight lead (1:1). The Navy does not keep such figures. However, its investment in a similarly experienced attack pilot is probably higher due to the added expense of putting a carrier to sea during much of his training. The Navy would recoup its investment in a CSAR helicopter after about two rescues.
- A prisoner of war provides the enemy with a source of possible intelligence as well as a political asset.
- An aircrewman's morale and aggressiveness will increase if he knows the Navy will expend every effort to rescue him in case he goes down.
- A CSAR capability provides the fleet with the ancillary benefits of greater special operations and rescue at sea capabilities. (12:1-2, 15:2-3)

The author believes that the Navy must possess an active duty CSAR capability even in peacetime to lessen the risk of unfriendly governments manipulating US foreign policy. Recent events demonstrated the terrible political and emotional burden borne by Americans when US citizens lie in captivity. The Iranians paralyzed the Carter administration for the 440 days they held American embassy personnel captive. President Reagan severely damaged his international antiterrorism campaign's credibility by shipping arms to Iranians whom he hoped would secure the release of American hostages in Lebanon. The Navy has been directly involved with several hostage situations by virtue of its ability to operate aircraft independent of access to friendly airfields. When the Navy launched an air strike into Lebanon in 1984, the Syrians turned it to their advantage when they captured an American airman. They held the international spotlight for several days before releasing LT Robert Goodman to the Rev. Jesse Jackson. When President Carter decided to rescue the hostages in the American embassy in Tehran in 1980, a carrier provided the only possible base

from which to launch the helicopters. The Navy needs a CSAR capability to lessen the likelihood that incidents like these do not happen again.

NAVY CSAR POLICY-WHERE WE ARE

Recent contingency operations in the Mediterranean Sea and the Persian Gulf highlighted the Navy's dearth of dedicated active duty CSAR capability. This section will outline how the Navy currently does CSAR and examine proposals to correct the current lack of active duty CSAR assets. While the Navy has not yet decided on the final details, the main point is clear--the CVBG will retain primary responsibility for its own CSAR. All the proposals are designed to make the policy work.

The US Army, Navy, and Air Force have all agreed to assign primary CSAR authority and responsibility to the area commander (19:2). In the northern parts of North Korea and North Vietnam and in some peacetime contingencies, such as the Libyan bombing in 1986 or the Bekaa Valley in 1984, the Navy operated far from US land forces who could provide CSAR support. In these cases, the CVBG commander, as Officer in Tactical Command (OTC), was the area commander and assumed primary CSAR responsibility (19:Enclosure (2), pp 1).

With no dedicated active duty CSAR assets in the Navy, planners often draw upon other sources to supply the CVBG Commander with a CSAR capability. If within range, US Army or Air Force aviation can often help as they did in both Vietnam and Korea. As shown later, the Air Force had primary CSAR responsibility in both wars for all allied forces, including the Navy, except in areas they could not quickly reach. Heavy air defense may dictate overland ground recovery by friendly indigenous forces or special operations forces (SOF). Such an extraction could take weeks and stands a very small chance of success. Even surface ships and submarines have a role if the aircrew manage to reach the water before abandoning their aircraft. In most cases, however, the Navy must rely on its own helicopters to provide the CVBG with SAR support. Only Navy/Marine helicopters can quickly reach the survivor able to perform the rescue and fit inside shipboard hangars.

If given sufficient lead time before a contingency operation, the CVBG can get its CSAR support from Helicopter Combat Support Squadron Nine (HC-9), the Naval Reserve CSAR squadron based at NAS North Island (19:Enclosure (2), pp 2). HC-9 carries on the proud legacy of the Helicopter Combat Support Squadron Seven (HC-7) Seawolves, the Navy's Vietnam War CSAR squadron. When the Navy decommissioned HC-7 in 1975, HC-9 inherited their CSAR assets including the armored HH-3A's. They train to perform CSAR when opposed by up to a medium density air defense system, honing their CSAR skills in a variety of environments. When the Navy contemplates a

contingency operation or finds itself embroiled in a crisis, HC-9 can deploy a detachment of aircrewmembers and even airframes with the CVBG. When COL Gaddafi drew his Line of Death across the Gulf of Sidra, HC-9 sent a detachment to the area from January until June, 1986, when the crisis subsided. However, during a short-fused operation the Navy may not have time to deploy them and the CVBG commander must assign the CSAR mission to local assets. One pool from which he can draw resides in the nearby Marine Amphibious Readiness Group (MARG) which deploys with around 24 combat ready helicopters.

While they have no dedicated CSAR units, tactics taught to all Marine helicopter pilots enhance their survivability and effectiveness while operating in a hostile inland environment. Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) provides representatives from all Marine helicopter units with training in low level and nap-of-the-earth (NOE) navigation, NVG's, evasive maneuvering (EVM), threat assessment, weapons employment, and the basics on planning and conducting aircrew recovery operations. However, for Marine helicopter pilots, CSAR remains a potential mission for which they are not specifically trained or equipped (10:--). Nonetheless, the CVBG commander may tap them in an emergency as the best talent available as occurred during the 1984 airstrike against the Syrians in the Bekaa Valley. However, if the Marines are not in the area or are involved with their own operations, the CVBG commander must rely on Navy helicopters organic to the CVBG.

Traditionally, the Navy has not perceived a need for its helicopters to operate in other than a benign overwater air environment. This lack of emphasis results in nonstandardized, scanty training for its helicopter pilots to prepare them for a possible overland CSAR role. Individual wing commanders have the discretion to train their pilots as they think best and, as a result, CSAR training has launched off in several different directions.

- The H-3, H-60, and H-2 Fleet Replacement Squadrons (FRS) on both coasts now teach or will soon teach a short course in hostile environment operations modeled on the course taught at MAWTS-1. The ground school courses emphasize EVM, safe flight regimes, threat assessment, and electronic countermeasures (ECM). In addition, both H-2 FRS's incorporate several flights into their hostile environment curriculum. Light Helicopter ASW Squadron 31 (HSL-31) on the west coast includes a three flight syllabus in SAM evasion, one versus one helicopter EVM, and tactical formation/weapons employment. HSL-30, its east coast counterpart, also provides EVM training for its pilots (21:98). While they do not specifically address overland CSAR tactics, the curricula will teach some skills necessary to successfully prosecute a CSAR mission. Helicopter ASW Squadron One (HS-1), the east coast H-3 FRS, incorporates CSAR training into its hostile environment curriculum by including instruction in low level navigation, special operations, and

CSAR planning and command and control. In addition to the ground school for its FRS students, HS-1 has a road show version for others who request it (20:--).

- Fleet Aviation Specialized Operational Training Group Pacific (FASOTRAGRUPAC), in conjunction with the Naval Strike Warfare Center (Strike U) at NAS Fallon, Nevada, provides airwing crewmembers with instruction in basic threat awareness and tactics, and Evasion Plan of Action (EPA) and Isolated Personnel Report (ISOPREP) procedures during predeployment training. HC-9 provides the HS squadrons with the only formal CSAR flight training currently available to Navy helicopter pilots. This short syllabus, conducted about twice yearly to requesting squadrons, prepares the aircrewmembers to conduct daytime overland CSAR opposed by no more than small arms fire.(19:Enclosure (2),pp4)

In addition to the aircrew training shortfalls, the CVBG's organic helicopters are woefully ill-equipped to conduct rescue operations in an opposed environment. The H-2's, H-3's, and H-60's are unarmored, unarmed, and filled with sophisticated gear for killing submarines, leaving little internal capacity for survivors. The H-46's, while not carrying ASW gear, suffer from low endurance and high vulnerability due to their large size and slow speed.(7:109) As air defenses grow ever more ominous, CSAR by the novice becomes an increasingly expensive and hazardous proposition. In submarine infested waters, can the CVBG Commander justify sacrificing any of his helicopters on a mission with a high probability of failing? His options may realistically come down to just two: insert a special forces team at a relatively unopposed area as near the survivor as possible, or abandoning the survivor to certain capture.

The Navy is pursuing several avenues to improve the CVBG's indigenous CSAR capability.

- VADM Dunn, Deputy Chief of Naval Operations (DCNO) for Air Warfare (OP-05), outlined the future thrust of Navy CSAR policy in a brief and question/answer session at AirPac on 6 August 1987. The SH-60F, the CV-helicopter replacing the SH-3H in 1989, will have hard points for mounting equipment from CSAR kits owned by all carriers. The HS pilots will fly the mission.(11:44)

- Light Helicopter Attack Squadrons Four and Five (HAL-4 and HAL-5), the east and west coast Naval Reserve SOF squadrons, will absorb HC-9 and become Helicopter Special Missions Squadrons Four and Five (HCS-4 and HCS-5). The Navy will charter these squadrons to fly special missions which will include both CSAR and SOF. Concurrently, the Navy will replace HC-9's HH-3A's and HAL 4/5's UH-1 Hueys with up to 18 HH-60H Rescue Hawks, each equipped with external fuel tanks hooked to sponsons, infrared (IR) suppressors, external hoist, and door mounted machine gun. Assigning squadrons the dual primary mission of CSAR and SOF is a trend among all the military branches.(16:42-44) The need for stealth to successfully

penetrate the sophisticated air defenses of future battlefields has caused the tactics for both missions to converge to a large degree. While these new machines may not have optimum CSAR designs, the current rage over SOF ensures that the military will possess more capable CSAR airframes than it does now.

- CINCLANTFLT, the CNO's Executive Agent for Joint Tactics, Techniques, and Procedures, is working with the other services, including the US Coast Guard, at the Air-Land Forces Application (ALFA) Agency on a multi-service CSAR document. These study groups will produce a compendium of each service's CSAR assets and recommendations as to each player's role should an emergency arise. This document will ease the CVBG commander's job of providing CSAR coverage for his aircrew.

- Helicopter Wings Atlantic (HELWINGSLANT), which owns all east coast HS squadrons, sponsored a CSAR conference in January 1988 at NAS North Island. HELWINGSLANT presides over Navy strike rescue as its Operational Action Authority, a position with responsibility similar to Model Managership. The participants, who included representatives from all Navy helicopter FRS's in addition to interested others, hoped to produce a standardized CSAR curriculum for use Navywide. LCDR Kerry Sullivan, the Navy's Assistant SAR Model Manager, attended the conference. He reported that the conferees agreed on the following proposals which HELWINGSLANT will draft into an instruction and route up the chain of command for consideration. The HS community will adopt a CSAR curriculum very similar to the one HC-9 teaches at Strike U. The proposed syllabus will consist of about 30 hours of classroom instruction covering the following subjects: CSAR mission planning, terrain flight (TERF), EVM, threat assessment, working with fixed wing escort, and Rescue Coordination Center (RCC) and Survival, Evasion, Resistance, and Escape (SERE) procedures. The 15 two hour flights will include modules in TERF, EVM, and NVG's. HC-9 will qualify two H-3 FRS instructors per coast as Strike Rescue Instructors who will then have the responsibility to train the top two pilots in each HS squadron as CSAR pilots. The H-2 and H-60 FRS's will teach similar, though less extensive, courses. All other Navy helicopter pilots will receive a baseline hostile environment training. (13:--)

While these changes will certainly improve the CVBG's CSAR capability, the author feels they do not adequately address the central problem with Navy CSAR: the Navy needs to develop active duty CSAR capability to deploy with the carrier airwing.

CSAR HISTORY-WHERE WE WERE

In this section, examining CSAR's evolution will lead to the conclusion that a fleet helicopter manned by pilots with little CSAR proficiency can no longer effectively fly opposed overland rescue missions. CSAR is a relatively recent concept

in warfare. Yet, the state of the art advanced so rapidly that it produced an environment in which the novice met with limited success.

Before airplanes gave man the ability to get shot down well behind enemy lines, CSAR as a concept did not make much sense. Even in World War I, when those magnificent men in their flying machines began shooting at each other, the military did not think much about recovering the survivors. The hapless aviator usually followed his airplane down in a blaze of glory.

In World War II, the Germans, followed later by the British and the Americans, provided effective maritime CSAR for their aviators. The Germans established an extensive CSAR network along the French coast early in the war using float planes, boats, and buoys. Also, they pioneered personal survival equipment such as inflatable dinghies for all their aircrews. The Americans and British entered the war with very little CSAR capability. Bomber crews who bailed out of their planes over the English Channel could only hope that a passing fisherman would rescue them before the Germans did. Not until late 1942 did the allies form a combined air-sea rescue service which functioned very well for the war's duration. In the Pacific theater, where most action took place over water, the Americans developed an effective CSAR system. Strategically positioned seaplanes, surface vessels, and submarines recovered many American flyers.(15:3-6)

Overland CSAR presented a very different challenge which the Americans could not adequately address until late in the war. In Europe, bomber crews shot down over occupied territory hoped the local resistance found them before the Germans. Overland rescue in the Pacific theater depended on evacuation teams slogging through jungle for weeks to recover downed aircrewmembers. In 1945, the Army Air Corps established in China the first American helicopter squadron, the 8th Emergency Rescue Squadron, to improve their land rescue capability. Before the war ended the squadron's Sikorsky R-6's flew 110 missions and rescued 43 airmen. While the helicopter arrived too late to contribute decisively to the war effort, it had immense implications for CSAR's future. Rescue rates improved dramatically as helicopters performed overland rescues in hours, not weeks.(15:7)

In the Korean War, the helicopter reaffirmed its utility as an overland rescue vehicle. USAF Air Rescue Service (ARS) helicopters saved about 10% of the aircrew who went down inside North Korea, a vast improvement on the virtual absence of overland CSAR in WWII. The Navy often operated its aircraft beyond the ARS helicopter's range, leaving CSAR up to the carrier's organic helicopter. The Sikorsky HO3S-1, a small, slow, fragile machine, often left directly from the plane guard pattern for North Korean airspace. In The Bridges at Toko-ri, who can forget Chief Mickey Rooney, resplendent in flowing green scarf and silk tophat, flying his helicopter from the

carrier inland in his vain attempt to rescue the downed Panther pilot fighting off the North Koreans from a ditch? Such heroism prompted a misty-eyed Admiral George Tarrant to wonder, "Where do we get such men?"(1:209) Even though extremely vulnerable against even a primitive air defense system, helicopters made overland CSAR possible. Unfortunately, both the Navy and Air Force abandoned CSAR after the war and needed to relearn it at terrible cost in Vietnam.

The Air Force ARS combined sheer audacity with constantly improving tactics and weapons systems to rescue 3883 souls throughout Indochina during the Vietnam War.(15:156) The ARS, which later became the Aerospace Rescue and Recovery Service (ARRS), entered the war with its largely HH-43 Husky force geared toward peacetime SAR. The small original contingent, with its nonexistent doctrine and ill suited aircraft, could not provide dependable CSAR support to the aircrew, so the ARS adapted accordingly. It pioneered several CSAR advances including heavily armored and armed HH-3's and HH-53's (the famous Jolly Green Giants), specially trained CSAR pilots and parajumpers, the Rescue Task Force concept, and theater-wide coordination from HC-130's acting as CSAR airborne command and control centers.(15:--)

The Navy also performed CSAR extremely well in Vietnam but only after it formed a squadron devoted exclusively to that mission. As the war began, the Navy had no CSAR assets to fulfill its CSAR obligation to aircrewmembers downed above the 20th parallel. As in Korea, the battle group tried to cover the mission with its organic helicopters. This approach proved unsuccessful and expensive. In early 1966, the Navy stripped the ASW gear from the H-2's on DLG's and the H-3's on carriers and tasked HC-1 Det Cubi Point and the Big Mother Det respectively with CSAR responsibility, a ploy made possible by the low submarine threat. The aircrew received scanty, non-standard training and the helicopters' CSAR retrofit amounted to adding two M-60 machine guns and armor plate around the pilot seats and engine cowling. The crews performed heroically, but the results did not improve significantly. While the Navy rescued 96% of the pilots who bailed out over the water while suffering no losses themselves, the overland rescue statistics tell another story.

- 321 Navy aircrewmembers downed close to the beach or inland.
- 169 (60%) reached the ground alive.
- 27 successful combat rescues.
- 19 SAR aircraft destroyed, 15 SAR personnel killed.(6:19-20)

Finally, the Navy combined the H-2 detachments with HC-1 Det Atsugi and the H-3 Big Mother Det to form HC-7. This squadron, with its dedicated assets, mission specialization, and standardized tactics, rescued over 150 pilots from the combat zone without losing a crew to enemy action.(12:5) As after WWII and Korea, the Navy dismantled its active duty CSAR apparatus after the Vietnam War.

Since the Vietnam War, the Navy continues to flirt with disaster by not possessing an active duty CSAR capability. While the Desert One debacle had blame enough for all concerned, the Navy must accept its share. MGEN James B. Vaught, USA, the Iran Rescue Task Force Commander, originally planned to man each Navy RH-53D Sea Stallion minesweeping helicopter with one Marine and one Naval aviator. However, the Navy pilots, who lacked experience with NVG's, low level navigation, and hostile environment operations, had "trouble mastering special flight maneuvers such as tight formation flying at night without landmarks." He eventually replaced all the Navy pilots but two with Marines and one Air Force pilot. (9:41) This lack of capability contributed to both the 5.5 month delay between capture and rescue attempt and the operation's ad hoc nature as the JCS scrambled to assemble an effective team. While neither of these problems in itself led to the mission's failure, they exacerbated an already difficult problem. For the Navy's current contingency operation, it provides a limited CSAR capability to the fleet in the Persian Gulf by incorporating interim aircraft modifications into the deployed ASW helicopters. (7:109)

As history marches on, CSAR becomes increasingly difficult and requires increasingly specialized skills not possessed by Navy helicopter pilots. Under the best of conditions, when primary duty CSAR pilots fly CSAR aircraft, the mission remains extremely dangerous. The Navy's attempts to cover CSAR with the CVBG's organic helicopters have never worked. It can not afford to relearn CSAR on today's deadly battlefield as it has in past wars.

CSAR-WHERE IT IS GOING

This section will outline recent technological developments relating to CSAR which serve to broaden the gap between what the Navy needs and what the Navy has. These advances, most of which the Navy has not incorporated, increase a helicopter's capability to perform rescues in situations once thought impossible. However, arrayed against the CSAR forces are weapons of increasing lethality. The net result is to make the Navy's reliance on the CVBG's organic helicopters to fly CSAR more hazardous than ever.

Let us return to our hapless A-6 aircrewmembers awaiting rescue. As the maintenance personnel replace the designated CSAR helicopter's ASW gear with the CSAR kit, the HS pilots contemplate the threat facing them across the beach. The Soviets field a dense array of SAM's and antiaircraft artillery (AAA) in their integrated ground force air defense system. It includes over 4600 mobile SAM's, 12000 AAA pieces such as the self-propelled radar-directed ZSU 23/4, and as many as 25000 shoulder fired SAM's (17:68) similar to the Stinger missiles

the Afghan mujahedin use with great success against Soviet helicopters. Additionally, the Soviets have shipped 15275 SAM's to the Third World from 1981 to 1986 (18:134). Should the CSAR forces successfully allude the ground force air defenses, they might still face attack helicopters. The Soviets optimized the Mil Mi-24 Hind-F for air-to-air combat. Also, they now deploy two new machines, the Mil Mi-28 Havoc and the Kamov Hokum, the latter specifically for air superiority missions. Proceeding apace is a longer range, more accurate follow-on to their ATP-6 anti-armor fire-and-forget missile now deployed on the Hind-E.(4:26)

As the maintenance personnel finish their task, the pilots preflight the machine with which they hope to penetrate the enemy's defenses. It lacks the basic survivability features found in today's battlefield helicopters, such as radar warning equipment, IR countermeasures, self-defense weaponry, self-sealing fuel tanks, airframe armor of critical areas, and geo-navigation systems (19:Enclosure (2),pp 2). Because their minimal overland CSAR training limits them to daylight only missions, the pilots have the remaining hours of darkness to ponder the task before them. They hope the A-6 crewmen know their evasion procedures because they may have a long wait.

Helicopter airframe and avionics technology available today to counter these threats, while very effective, is also extremely expensive. Sikorsky designed the MH-60D Night Hawk for the Air Force as the ultimate CSAR vehicle. Unfortunately, the avionics/electronics suite and other systems enhancements quadrupled its cost over the basic airframe, convincing the Air Force to terminate the program last year.(16:43)

Let us turn our attention once more to the survivors from the A-6. This time, a professional CSAR crew in a helicopter equipped with CSAR gear developed for the Night Hawk will perform the mission. Before the strike aircraft left the carrier, the CSAR helicopter and crew moved to an escort ship close to the beach and began planning. They loaded charts of the strike objective into the aircraft's inertial navigation system (INS) driven moving map display. The pilot next entered the coordinates of known enemy threats and potentially useful navigation reference points along the strike's ingress and egress routes. When word reached the rescue crew about the A-6's demise, they quickly entered the survivors' location and updated threat information, then launched into the darkness. Until recently, helicopters did not incorporate equipment for flying low overland at night or in bad weather, making CSAR in these conditions nearly impossible. Today, however, the CSAR pilot can see his surroundings well enough for low level contour flight by using the thermal imaging from his forward looking infrared (FLIR) displayed on the monocle-like screen near his right eye, called a helmet mounted display (HMD). The FLIR itself slews in synchronization with the pilot's head movement. Superimposed over the FLIR image is the vertical

situation display (VSD) symbology which incorporates all information derived from the aircraft's flight instruments. Meanwhile, the copilot navigates, monitors the aircraft's health, and manages the fuel. The computer which integrates all the information from all the aircraft's sensors and displays it on any of the cockpit's four cathode ray tubes (CRT) simplifies his job immensely. It issues a warning when any preset engine or airframe parameter is exceeded, and automatically calculates fuel consumption and fuel required to complete the mission. The copilot periodically updates the INS and steers the aircraft clear of unexpected SAM sites discovered by their threat warning receiver. When dense fog degrades their FLIR image, they continue on using the terrain following radar with terrain avoidance symbology superimposed on the HMD's and CRT's. By employing terrain masking and using the night and bad weather as cover, the helicopter reaches the survivors undetected. However, as the helicopter hoists them aboard, enemy troops arrive on the scene and rake the aircraft with small arms fire. Fortunately, the redundant avionics and hydraulic systems as well as ballistically tolerant airframe components survive the battle damage as the helicopter disappears into the blackness.(14:44-49)

All current and projected CSAR/SOF helicopters represent cheaper compromises of the Night Hawk (16:43). However, even these lesser systems require CSAR pilots who have undergone thorough initial training and extensive proficiency flying to properly employ the equipment and tactics.

While each CSAR mission is unique, most will fit within three broad categories with three different rescue strategies. 1. Rescue at sea. As discussed previously, during World War II, Korea, and Vietnam, the aircrew stood the greatest chance of rescue if they could nurse their crippled aircraft to the water before ejecting. The Navy has always done this mission extremely well employing air, surface, and subsurface units in tandem.

2. Rescue overland opposed by a relatively primitive air defense system (as the Navy faced in parts of Korea and Vietnam, and in many Third World contingency operations). In these situations, the quick reaction rescue task force overwhelms the enemy with firepower during the rescue phase. Modern battlefield air defense systems severely limit this option (19:Encoslure (2), pp 4) which requires:

- Armed, armored helicopters to withstand the punishment of intense small arms fire.
- Fixed wing pilots who know how to escort helicopters.
- A command and control center well versed in CSAR which can coordinate the effort, including calling in help when necessary.

3. Rescue overland opposed by a sophisticated air defense system. Sending today's CVBG helicopter into the teeth of one of these is suicide. As discussed earlier, CSAR in this

situation may require a SOF extraction team and a helicopter relying on stealth. This mission has very different requirements.

- Pilots in properly outfitted aircraft who can fly low at night while performing such tasks as navigating low level and conducting a limited search and rescue at the destination.
- A sophisticated command and control system which can direct this type of sneaky extraction and work with the special forces or indigenous movement who, with luck, reached the pilot before the enemy did.

To effectively cover these last two contingencies requires the flexibility and skill of pilots who thoroughly understand the tactics involved and practice them constantly, as well as a specially designed airframe. A submarine hunter with CSAR as a collateral duty in a current CVBG organic helicopter will not suffice. The CVBG must deploy with CSAR professionals to provide an adequate level of coverage on today's battlefield.

NAVY CSAR POLICY-WHERE WE SHOULD GO

Even though budget constraints and political considerations often prevent the Navy from enacting an ideal solution, it still has several options for building a viable active duty CSAR capability using institutions already in existence. All these alternatives provide the CVBG with CSAR expertise from the day the workups begin until the deployment ends.

Option 1. The Navy can establish HCS-4 and HCS-5 as dual active/reserve squadrons. They would conduct extensive initial and proficiency training for all their pilots and aircrewmembers, and would provide the focal point for Navy CSAR doctrinal development. The active duty component would provide a two plane detachment to the carrier air wing during workups. This detachment would have the responsibility to train the fixed wing pilots, appropriate CIC personnel, and other CVBG helicopter pilots who may need to support their operations. The reserves would continue preparing to augment the active component in time of war. In addition to the obvious readiness and capability advantages, the CVBG Commander need not worry about compromising an operation by suddenly inserting a CSAR helicopter into the CVBG, an addition the enemy might notice. The Navy would need to increase its HH-60H buy and establish sufficient active duty pilots, aircrewmembers, and maintenance personnel to man the detachments, but they would integrate into organizations with facilities, administrative and logistical support, and CSAR/SOF talent already in place.

Option 2. The Navy can give the mission to HC-16, its SAR Model Manager. Already adept at overwater SAR and unopposed overland SAR, HC-16 can easily integrate CSAR into their program. Its location at NAS Pensacola, close to the USAF 55th ARRS and SOF at Hurlbert Field, FL, will ease the squadron's

adoption of CSAR. Even though the Navy would again need to augment HC-16 with sufficient airframes and people to cover mission requirements, all the advantages in Option 1 apply. Option 3. If the Navy can not afford additional airframes, it can attach an active duty contingent of pilots and aircrewmen to the reserve keeper of the Navy's CSAR expertise. A detachment of two or three pilots and aircrewmen would work up and deploy with the CVBG's HS squadron and provide the same CSAR training listed above. Since the reserves and the HS squadrons will all soon fly variants of the H-60, the HS and/or HSL pilots can quickly familiarize the CSAR pilots with their equipment. The helicopter squadron's maintenance personnel could quickly modify a fleet SH-60B/F into a better CSAR platform should the need arise. After the deployment, the detachment would return to its parent squadron to undergo CSAR refresher/proficiency training. With this option, the CVBG will at least always deploy with CSAR expertise.

Another recommendation to enhance the viability of any option listed above is a standardized CSAR/hostile environment/weapons employment ground and flight syllabus. Ideally, the Navy will offer this syllabus as part of a graduate level flight program, similar to MAWTS-1 and possibly attached to the Naval Strike Warfare Center. Each Navy helicopter unit would have at least one graduate who then has the responsibility of training his squadronmates.

The Navy has an obligation to attempt rescuing its aircrewmen if they fail to return safely to the battle group, an obligation it can not adequately fulfill today. In the words of Senator Jeremiah Denton, himself hosted for several years by the North Vietnamese:

Those of us not rescued in Viet Nam but fortunate enough to survive the mental and physical rigors and anguish of prisoner internment know the costs of inadequate combat SAR-cost measured in human spirit, morale, lives and dollars. Difficult as it may be to project those costs precisely, it is predictable that the cost in possible future conflict will greatly exceed those of past wars unless actions are taken to accord a high peacetime priority to the Combat SAR mission."(6:21)

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